

10th Class 2021

Computer Science	Group-I	PAPER:II
Time: 1.45 Hours	(Subjective Type)	Max. Marks: 40

(Part-I)

2. Write short answers to any FOUR (4) questions: (8)

(i) When does a syntax error occur?

Ans A syntax error occurs when the program violates one or more grammatical rules of the programming language. These errors are detected at compile time *i.e.*, when the translator (compiler or interpreter) attempts to translate the program.

(ii) What is meant by desk checking?

Ans It is the process of carefully observing the working of an algorithm, on the paper, for some test data. Algorithm is provided a variable set of input for which the output is examined.

(iii) Why is loop control structure used in BASIC?

Ans We often face problems whose solution may require executing a set of statements repeatedly. In such situations, we need a structure that would allow repeating a set of statements up to fixed number of times or until a certain criterion is satisfied. Loop structure fulfills this basic requirement.

(iv) Write the purpose of FOR ---- NEXT loop.

Ans The FOR ---- NEXT loop is an iterative, incremental loop statement used to repeat a sequence of statements for a specific number of occurrences.

(v) How does IF ---- THEN statement work in BASIC?

Ans The IF...THEN is a decision making statement, depending upon the decision, it can change the order of program execution. It is used to select a path flow in a program based on a condition. A condition is an expression that either evaluates to true (usually represented by 1) or false (represented by 0).

(vi) Define nested loop.

Ans Inside a loop (FOR or WHILE), there can be one or more loops (FOR or WHILE), such type of structure is known as nested loop.

3. Write short answers to any FOUR (4) questions: (8)

(i) How does direct mode work in BASIC?

Ans In the direct mode, GW-BASIC commands are executed as they are typed. Results of arithmetic and logical operations can be displayed immediately, but the commands themselves are lost after execution. This mode is useful for debugging and for quick computations that do not require a complete program.

(ii) Define numeric variable.

Ans A variable which can only store a numeric value is called numeric variable.

(iii) What is the use of assignment operator?

Ans The assignment operator is used to store a value, string or a computational result in a variable.

(iv) How we can fill an array?

Ans Data (String and numbers) is entered in an array by using LET, READ or INPUT statements for filling and printing of an array.

(v) Write the use of subscript variable in array.

Ans The subscript or index value is written in parentheses with the name of array. The first element of the array has an index value of 0 unless specified otherwise, and the index is incremented for each next element.

(vi) What is meant by one-dimensional array?

Ans One-dimensional array is also known as linear array or vector array. It consists of only one row or column. It is also called 1-D array.

4. Write short answers to any FOUR (4) questions: (8)

(i) Write the purpose and syntax of "LOG" function.

Ans Purpose:

To return a natural logarithm (LOG in BASIC is a logarithm to the base $e = 2.718282$).

Syntax:

LOG(x).

(ii) What is meant by user-defined functions?

Ans A user-defined function is completely defined and customized by the programmer to solve some problems. Functions that we write are called *user-defined functions*.

(iii) Write the syntax and purpose of "ABS" function.

Ans Purpose:

The purpose of ABS function is to return the absolute value of the expression x i.e., the value without any sign.

Syntax:

ABS(x).

(iv) Define "sub-program".

Ans A larger program is divided into smaller, manageable piece of codes are called sub-program.

(v) Write the use of medium resolution graphic mode.

Ans Medium Resolution Graphic Mode is used in drawing graphic. The display screen is divided into a matrix consisting of 320 columns and 200 rows of pixels. Thus the position of each and every pixel will be determined by its coordinates on x-axis and y-axis of the screen. This graphical mode works with 4 colors. The different four colors are 0, 1, 2, 3, one of 16 color can chosen for background and one for foreground.

(vi) Write the syntax of PSET.

Ans PSET (x, y) [$color$]

PSET (x offset, y offset) is a point relative to the most recent point referenced. For example:

PSET (10, 10).

(Part-II)

NOTE: Attempt any TWO (2) questions.

Q.5. What is meant by flow chart? Write the advantages and limitations of flow chart. (8)

Ans Flow Chart:

"A flow chart is a pictorial representation of an algorithm."

It is a way of visually presenting the flow of data, the operations performed within the system and the sequence in which they are performed. The flow chart is similar to the layout plan of a building.

Advantages of Flow Chart:

The benefits of flow chart are as follows:

1. With the help of a flow chart, the logic of an algorithm can be described more effectively.

2. As flow charts are part of the design document, hence maintenance of operational programs becomes easy.
3. The flow chart acts as a guide for the program development. Therefore, they help the programmer to put efforts more efficiently on the underlying problem.
4. The flow chart helps in debugging process.

Limitations:

1. It is difficult to draw flow charts for complex problems.
2. If alterations are required, the flow chart is to be redrawn.

Q.6. Briefly describe the structure of a BASIC program. (8)

Ans **Structure of the BASIC Program:**

Every BASIC program should follow the following rules:

- (i) Every program statement must begin with a line number.
- (ii) It is a good practice to end every BASIC program with an END statement. However, it is not mandatory.
- (iii) Repetition of line numbers within a program is not allowed.
- (iv) Two or more statements can be written on a line but they must be separated by a colon (:).
- (v) In BASIC, variables can be used without declaration.
- (vi) In a BASIC program, the physical appearance of the program statements does not matter. For example, in a program, line number 90 can appear before line number 60; however, the program statements will always execute according to the ascending order of specified line numbers.

Q.7. What is Line Statement? Explain it with example. (8)

Ans **LINE Statement:**

The purpose of LINE statement is to draw lines and boxes on the screen. We can use the LINE statement to generate a line between any two statements.

Syntax:

LINE [(x1,y1)-(x2,y2) [, [attribute] [, B[F]] [, style]]

In the syntax, the values (x1, y1) and (x2, y2) are used to specify the coordinate positions of starting and ending point of the line. These two points positions are separated by a minus or

dash sign. The attribute specifies the color or intensity of the display pixel.

B(box) to draw a box with the points (x_1, y_1) and (x_2, y_2) at opposite corners. BF (filled box) to draw a box as B and fills in the interior with points. The style is a 16-bit integer mask used when putting down pixels on the screen. This is called line-styling. Style can one of 0, 1, 2, 3, 4, and 5. It is used for normal lines and boxes, but invalid for filled boxes.

The simplest form of LINE is the following:

LINE - (x_2, y_2)

This draws a line from the last point referenced to the point (x_2, y_2) in the foreground color.



Examples:

LINE $(160, 0) - (160, 199)$

LINE $(0, 0) - (100, 175),,B$

a square box in the upper left corner of the screen.